

# To Study the Effect of 3PL on Consumer Behaviour With Respect to E-Commerce Industry

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## ABSTRACT

*Third party logistics (3PL) is a business which is dynamically growing importance all over the world. However, it is at a very nascent stage in India, though some domestic and multinational companies are trying to establish themselves in this sector and they are achieving their heights. This paper is an attempt to provide a process of 3PL in E- Commerce Industry with keeping Electronics Goods as a base. The paper focuses on three major issues – present extent of usage of third party logistics services in E-commerce industry, reasons for reaching products/orders late than delivery date and impact of usage of third party logistics services on business/ brands of E-commerce. The paper reveals that most customers are not satisfied with the current level of services provided by E-commerce service providers as it has led to a negative impact on business. The result is that the usage of third party logistics services will decrease substantially (40 percent) in the near future, or they need to upgrade themselves to new technology and satisfy the customers.*

**Key Words:** Supply Chain Management, Third Party Logistics, E-commerce, Electronics Goods.

## INTRODUCTION

### Evolution of 3PL:

- In the 1980's when businesses began to look for new ways there was growth in 3 PL companies therein which they could outsource logistics functions and concentrate on their core business.
- FedEx is the company which has brought 3PL revolution for the first time.
- The company's overnight delivery service changed the way in which B2B and B2C transactions operated.
- As the number of companies offering the service increased, it led to intense competition between them.

### Introduction to 3PL:

- Third party logistics (3PL) companies are becoming an important part of today's Supply chain.
- These companies offer services that can allow businesses to outsource part of all of their supply chain management function.
- Many 3PL companies offer a wide range of services including; inbound freight, freight consolidation, warehousing, distribution, order fulfillment and outbound freight.
- In developed countries like US and Japan, use of 3PL services account for over 50% of the total logistic cost

**Definition:**

Third Party Logistics firm may be defined as an external supplier that performs all or part of a company's logistics functions.

**True 3PL:**

- Characteristics of 3PL are integrated/ managed together and they provide solutions to the logistics/ supply chain problems.
- Recently, there has been significant increase in the number of firms offering the service and this trend is expected to continue. While many of the firms are small, niche players, the industry has large firms as well.
- E.g. Fed Ex, UPS Worldwide logistics, Excel, Caterpillar Logistics services, etc.

**Types of 3PL Providers:**

- **Transportation-Based:**
  - Transportation, which is a major activity in a supply chain of a firm, is taken care of by these providers.
  - Leveraged 3PLs use the assets of other firms for the work to be done and Non-leveraged 3PLs use the assets which belong solely to the parent firm.
  - Ryder, Schneider Logistics, FedEx Logistics, and UPS Logistics are examples of 3PLs.
- **Warehouse/Distribution-Based:**
  - These types of providers take care of all the ware house and distribution activities of the firm.
  - This type of transition is more complex when compared to transportation based transition.
  - DSC Logistics, USCO, Caterpillar Logistics, are examples of warehouse/distribution-based 3PLs.
- **Forwarder-Based:**
  - Independent middlemen extend forwarder roles.
  - A broad range of logistics services are provided by non-asset owners.
  - AEI, Kuehne & Nagle, Fritz, Circle, C. H. Robinson, and the Hub Group are examples of forwarder-based 3PLs.
- **Financial-Based:**
  - Provide booking, managing inventory, auditing, cost accounting and control, and tools for monitoring, tracking, and freight payment.
  - Cass Information Systems, CTC, GE Information Services, and FleetBoston are examples of financial-based 3PLs.
- **Information-Based:**
  - Significant growth and development in this alternative category of Internet-based, business-to-business, electronic markets for transportation and logistics services.
  - Transplace and Nistevo are examples of information-based 3PLs.

### **3PL Market in India:**

As companies are concentrating on managing supply chain demand for 3PL's has increased rapidly. Increased awareness about efficient logistics practices led to the growth of 3PL industry. Because of the infrastructural development such as ports, highways, bridges as well as increasing connectivity and rising significance of logistic services in the country, 3PL has vast opportunities in India. Segment-wise market potential of the 3PL services facilitates the better analysis of the penetration level of latest logistic services across different industries in India. Analysts says that, automobile and IT hardware industry to be the largest end-user industry for 3PL services, multinationals being the dominant users. FMCG and retail sectors are among the other sectors which contribute to the 3PL market and have significant potency to grow in future.

### **Future of 3PL in India**

The 3PL in India is still in a growing stage because multinational companies are the main user of these services. However, local companies in the industry have also begun to follow the same steps of their MNC counterparts and starting with contract out their basic logistic functions. The domestic companies might increase their 3PL usage in the basic logistic functions and irregularly testing with the value-added services but the small and medium companies could now begin to use 3PL services for their basic logistic functions. The multinational companies that are using 3PL in basic logistic functions might adapt to outsourcing value-added services such as inbound logistics, customer support, and reverse logistics. However, taking into account that the most important logistics functions for Indian companies still are transportation and warehousing, which are likely to be outsourced to 3PL in increasing share, a high level of growth is estimated for the Indian 3PL market in the next 5-7 years.

### **Vendor Relationship Management**

VRM is a category of business activity made possible by software tools that provide customers with both independence from vendors and better means for engaging with vendors. These same tools can also apply to individuals' relations with other institutions and organizations VRM tools provide customers with the means to bear their share of the relationship burden with vendors and other organizations. They relieve CRM of the perceived need to "target," "capture," "acquire," "lock in, ""direct," "own," "manage," and otherwise take the lead of relationships with customers. With VRM operating on the customer's side, Customers are also involved as participants.

## **REVIEW OF LITERATURE**

Logistics is therefore emerging as a key frontier of competition in the future. Good logistics performance requires a trade off between the need to reduce overall supply chain inventory and lead times, while simultaneously capturing economies of scale and improving customer service for enhanced business performance.

- ***Campbell DJ.,(1998)***
  - Length of experience with third party logistics firms
  - Level of commitment to the usage of third party logistics services
  - Percentage of the total logistics budget allocated to third party logistics service providers
  - Specific logistics services outsourced (warehouse management, shipment consolidation, fleet management, order fulfilment, product returns, carrier selection, logistics information systems, rate negotiation, product assembly, order processing, inventory replenishment, order picking, inbound transportation, outbound transportation, labelling and packaging,

distribution, custom clearance and forwarding, import export management, customer service/support).

- **Watson and Pitt (1989), Sheffi (1990), et.al** have suggested the following reasons for the growth of logistics outsourcing in America: need to focus on core activities, better transportation solutions (e.g., consolidation), cost savings, customized services, reducing inventory, penetrating markets, becoming more active in international shipping, gaining the use of sophisticated technology, need for more professional and better-equipped logistics services.
- **Palmer, Kimberly, More (2011)** have observed that the future usage of third party logistics services is a function of the current level of satisfaction of the firm with the logistics services provider. The authors have also explored the changes in the level and the nature of outsourcing of logistics services by the user firms. The above studies indicate the high levels of satisfaction with third party logistics services providers, which will translate in increased outsourcing in the near future. Typically, firms start with the outsourcing of few logistics services, moving over to activities which have maximum impact on logistics performance and then increase scope of usage of logistics services with perceived and quantifiable impact on overall business performance.
- **David Whiteley (2001)** mention in his book named “*E-commerce strategy, technology and applications*” that Electronics commerce is a general concept covering any form of business transaction or information exchange executed using information and communication technologies (ICTs). E commerce takes place between companies, between companies and their customers, or between companies and public administrations. E commerce includes electronic trading of goods, services and electronic material (Esprit, 1997)
- Categories of E commerce referred from the book “*E commerce Strategy, Technology and implementation*” by **Gary P. Schneider** are as follows:
  1. **B2C (Business-to-Consumer)**
  2. B2B (Business-to-Business)
  3. C2C (Consumer-to-Consumer)
  4. B2G (Business-to-Government)

Consumer shopping on the web, often considered as Business-to-Consumer (B2C), This paper also focuses on these category.

- As rightly mentioned in the article named “*3PL - The Backbone of Online Shopping*” that the evolution of e-commerce and shopping for just about anything being only a click away makes it important to have a smooth supply chain management system. With continuous product lines and delivery times that are faster than ever, online simply retailers have become the one stop shops for many. In order to make sure timely deliveries e-commerce stores need to tackle problems of inventory, packaging, warehousing, shipping, and tracking. Logistics is a part of online shopping where complications can arise and this is why online retailers require third party logistic providers also called 3PL. Outsourcing logistical necessities to a service provider that focuses in different areas such as handling inventory and distributing products.

Small and medium scale online clothing retailers are making the most of this capability. The clothing e-commerce market is overflowing with new companies every day, and hence the issue of distributing products in the shortest span of time arises. If an e-commerce portal is unable to accomplish the order in 48 hours, then consumer quickly move to another website or like to buy it from a physical store. Many e-tailers are also offering the speedy process of delivery by giving the choice of receiving products ordered on the same day. Such competitive environments call for partnering with specialized services of 3PL.

- **Logistics: The key to E success** this articles reveals the fact that how 3 PL leads E-commerce business towards success in China. The rapid growth of E commerce and the subsequent logistics challenges means both e commerce companies and logistics providers have an opportunity to move quickly to address their problem. The solutions are unlikely to come from e commerce in-house logistics, for market growth will soon make this unsustainable. The real solutions are more likely to be found in strategic partnerships between e commerce firms and third-party logistics providers.

### OBJECTIVE OF STUDY

1. To study consumers concern before buying the electronics goods online.( Question No. 11 & 12)
2. To study consumers behavior with respect to goods delivery by 3PL.(Correlation test Question No. 14 First & Last Sub Question)
3. To study consumers behavior for electronics goods delivery during festive/sale/offer period. (Correlation test Question No. 14 Second & Question No.15)

Conduct Regression test between Objective 1 & 2(Delivery Date, Reading Reviews & Sharing Reviews if late delivered)

### HYPOTHESIS OF STUDY

**H<sub>01</sub>**: Consumers have no concern before buying the electronics goods online.

**H<sub>11</sub>**: Consumers have concern before buying the electronics goods online.

**H<sub>02</sub>**: There is no effect on consumer behaviour with respect to goods delivery by 3PL.

**H<sub>12</sub>**: There is an effect on consumer behaviour with respect to goods delivery by 3PL.

**H<sub>03</sub>**: Consumers behaviour have not affected by electronics goods delivery during festive/sale/offer period

**H<sub>13</sub>**: Consumers behaviour gets affected by electronics goods delivery during festive/sale/offer period.

## **RESEARCH APPROACH (Exploratory Research)**

### **Data Collection Method (Primary Survey)**

We have find out the attributes of factor influencing Online Shopping of Electronics Goods. Then prepared 26 open ended & close ended questionnaires and did trial survey of sample size 30.

With modified questionnaire we have done online survey by forwarding link to the respective consumer and got respond from 100 consumers.

Close-ended questionnaire

These questions were used to know what are the different attributes which consumer looks while selecting the Brand for Online Shopping.

### **Measurement Technique**

To record the data the following measurement techniques would be used:

#### **Multiple Choice Questions**

Five as well as seven options were given to the respondent.

#### **Likert Scale**

The Likert scale would be used to find out agreement and disagreement of the respondents perceives the attributes of selecting the brand and also the effect if the brand is changed.

#### **Willingness of Respondents**

Personal questions like Name, Age, Gender, Occupation, Income (Annually) has been asked at the first of the questionnaire

### **Sampling Plan**

The sample for survey would be taken on the following basis.

**Sample Frame:** Name, Age, Gender, Occupation, Income (Annually)

**Sample Unit:** Students, Working professionals and Businessman.

**Statistical Tool:** IBM SPSS Statistics

**Time Frame:** 10-15 Days.

**Sampling Method:** Simple random sampling (SRS)

**Sample Size:** 100 respondents

## RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem. It may be understood as science of studying how research is done

### Research Design:

This research studies are concerned with describing the characteristics of a particular individual or of a group. This study is concerned with specific assumptions, with narration of facts and characteristics concerning individual, group or situation are examples of descriptive study.

### Statistical Hypothesis Methods Used:

#### 1 Sample Independent T test

- The Independent Samples  $t$  Test compares the means of two independent groups in order to determine whether there is statistical evidence that the associated population means are significantly different. The Independent Samples  $t$  Test is a parametric test.
- The variables used in this test are known as:  
Dependent variable, or test variable  
Independent variable or grouping variable

The Independent Samples  $t$  Test is commonly used to test the following:

- Statistical differences between the means of two groups
- Statistical differences between the means of two interventions
- Statistical differences between the means of two change scores

#### 2 ANOVA Test of Hypothesis

ANOVA is widely used by researchers to investigate the underlying relationship between a dependent variable and various independent variables.

It is used when there are multiple sample. It is statistical tool which is used to analyses the variations among the data and calculate the inequality among the population mean.

It helps to examine 'n' number of factors influencing the dependent variables.

#### 3 Correlation (Linear)

Correlation analysis is a quantitative research method which is used when the study involves modeling and analyzing several variables, where the relationship includes a dependent variable and one or more independent variables.

The basic form of correlation models includes unknown parameters ( $\beta$ ), independent variables ( $X$ ), and the dependent variable ( $Y$ ).

Correlation model, basically, specifies the relation of dependent variable ( $Y$ ) to a function combination of independent variables ( $X$ ) and unknown parameters ( $\beta$ )

$$Y \approx f(X, \beta)$$

Three major uses for regression analysis are (1) causal analysis, (2) forecasting an effect, and (3) trend forecasting.

## STATISTICAL ANALYSIS

### Sample Independent T test for Gender

Test Variable: Overall Satisfaction

Grouping Variable: 1= Male & 2= Female

```
T-TEST GROUPS=Gender(1 2)
/MISSING=ANALYSIS
/VARIABLES=OverallSatisfaction
/CRITERIA=CI(.95).
```

#### → T-Test

[DataSet0]

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
OverallSatisfaction	Male	59	5,42	1,367	,178
	Female	41	5,88	1,327	,207

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
OverallSatisfaction	Equal variances assumed	,115	,736	-1,654	98	,101	-,454	,275	-,999	,091
	Equal variances not assumed			-1,663	87,837	,100	-,454	,273	-,997	,088

Here significant value is 0.101 and 0.100 which is greater than 0.05 therefore Accept Null Hypothesis, that means overall satisfaction is independent on gender.

(**H<sub>0</sub>**:  $\mu_1 = \mu_2$  i.e. Overall Satisfaction is almost same on gender.)



## ONEWAY Anova Switch Site by Gender

- a Dependent Variable: Delivery Date & Reading Reviews
- b Grouping Factor: Gender

### Oneway

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Q11	Between Groups	10,152	6	1,692	1,358	,240
	Within Groups	115,848	93	1,246		
	Total	126,000	99			
Q12	Between Groups	4,274	6	,712	,536	,780
	Within Groups	123,566	93	1,329		
	Total	127,840	99			

Here significant value is 0.240 and 0.780 which is much greater than 0.05 therefore reject the Null Hypothesis

That means consumer is more concern which is independent on Gender, and mostly there are consumer who are more concern for delivery date and reviews.

Therefore accept  $H_{11}$  and reject  $H_{01}$

## Correlation Test for Late Delivery and Sharing Reviews

### → Correlations

		TimeSaving	Comparision OfProducts
TimeSaving	Pearson Correlation	1	,632**
	Sig. (2-tailed)		,000
	N	100	100
ComparisionOfProducts	Pearson Correlation	,632**	1
	Sig. (2-tailed)	,000	
	N	100	100

\*\* . Correlation is significant at the 0.01 level (2-tailed).

It is a Significant Correlation as it is 0.632 which is greater than 0.01, therefore the consumer shares its review on E-commerce site if the product is late delivered.

Therefore Accept  $H_{12}$  and reject  $H_{02}$

## Correlation with late delivery during festive/sale/offer period and site switching

### Correlations

		TimeSaving	Comparison OfProducts	LateDeliveryMoreThanTwice	ShareReviews
TimeSaving	Pearson Correlation	1	,632**	,099	,004
	Sig. (2-tailed)		,000	,325	,967
	N	100	100	100	100
ComparisonOfProducts	Pearson Correlation	,632**	1	,106	,048
	Sig. (2-tailed)	,000		,294	,634
	N	100	100	100	100
LateDeliveryMoreThanTwice	Pearson Correlation	,099	,106	1	,718**
	Sig. (2-tailed)	,325	,294		,000
	N	100	100	100	100
ShareReviews	Pearson Correlation	,004	,048	,718**	1
	Sig. (2-tailed)	,967	,634	,000	
	N	100	100	100	100

\*\* . Correlation is significant at the 0.01 level (2-tailed).

It is a Significant Correlation as it is 0.42 which is greater than 0.01

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,831	1	3,831	3,031	,085 <sup>b</sup>
	Residual	123,879	98	1,264		
	Total	127,710	99			

a. Dependent Variable: FrequencyOfBuying

b. Predictors: (Constant), LateDelivery

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,159	,271		11,669	,000
	LateDelivery	-,335	,192	-,173	-1,741	,085

a. Dependent Variable: FrequencyOfBuying

On the basis of the Output, (**H<sub>13</sub>**) is Accepted for Frequency of late delivery and Late Delivery because Significant Value is 0.085 which is greater than 0.05.

## CORRELATIONS

```
/VARIABLES=Income ShareReview SwitchedSite  
/PRINT=TWOTAIL NOSIG  
/MISSING=PAIRWISE.
```

## → Correlations

[DataSet0]

Correlations

		Income	ShareReview	SwitchedSite
Income	Pearson Correlation	1	-,103	-,173
	Sig. (2-tailed)		,309	,085
	N	100	100	100
ShareReview	Pearson Correlation	-,103	1	,287**
	Sig. (2-tailed)	,309		,004
	N	100	100	100
SwitchedSite	Pearson Correlation	-,173	,287**	1
	Sig. (2-tailed)	,085	,004	
	N	100	100	100

\*\* . Correlation is significant at the 0.01 level (2-tailed).

It is a Significant Correlation as it is 0.287 which is greater than 0.01, therefore the customer also shares its review on E-commerce site if the product is late delivered and further Consumer switch the E-commerce site.

Consumers' behaviour gets affected by electronics goods delivery during festive/sale/offer period which results into switching the sites.

Therefore Accept  $H_{13}$  and reject  $H_{03}$

## SCOPE OF THE STUDY

- To know customers brand loyalty.
- To know about which purchase type people prefer most.
- To find out the reason for buying products.
- To find out the price range that people prefer most.

## FINDINGS

- 59% of the total respondents are Male who buys Products from E-commerce Site.
- 79% of Respondents check Delivery Date before Buying the Product.
- 87% of Respondents read reviews before buying any product from any particular website.
- 60% of the Total respondents change the E-commerce site due to late delivery of product.
- Out of which only 41% share their bad experience in form of a review on E-commerce site.
- 68% of Total respondents buy goods during festive carnival/discounts/sale.
-

## LIMITATIONS OF STUDY

- Research was conducted within a constrained sample of respondents.
- Respondents were largely from large cities which biased the results towards the consumer behavior of the rural areas.
- Unequal distribution of both the genders.
- The chances of respondents filling the questionnaire hastily are high.

## CONCLUSION

Online shopping is becoming more popular day by day with the increase in the usage of World Wide Web known as www. Understanding customer's need for online selling has become challenge for marketers.

Specially understanding the consumer's attitudes towards online shopping, making improvement in the factors that influence consumers to shop online and working on factors that affect consumers to shop online will help E-commerce organisations to gain the competitive edge over others.

In conclusion, having access to online shopping has truly revolutionized and influenced our society as a whole. This use of technology has opened new doors and opportunities that enable for a more convenient lifestyle today. Variety, quick service and reduced prices were three significant ways in which online shopping influenced people from all over the world.

If huge discounts are arranged by E-commerce site then the consumers buy more goods which lead to late delivery even after the festive offers are over. This affects on the customer buying behaviour from a particular site and the brand is switch by them.

While planning for festive carnival along with inventory management e commerce organization should also focus on involvement of 3PL for planning following factors:

- Human resource management(Delivery boys and supervisors)
- Vehicle capacity management
- Tracking and Tracing the parcel

E commerce & their respective 3 PL should work collaboratively by analysing the issues from consumer side.

Though the logistic part is handled by 3PL but e commerce should believe in vendor relationship management to attain the win-win situation.

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